

## **Outfall 002A – TCE Exceedance in June 2017 and Plan of Action**

The TCE concentration in the sample from outfall 002A (groundwater infiltration) was 19 ppb this month, compared to a permit limit of 5 ppb.

We believe this exceedance was due to the following:

- Full capture of dry weather flow was not being achieved at the time of sample collection at a recovery flow rate of 45 gallons per minute (gpm).
  - Note: The dry weather flow at the time of sample collection also exceeded the maximum design capacity (50 gpm) of the dry weather capture system due to the seasonally high groundwater table resulting in abnormally high rates of groundwater infiltration into the storm sewer system

The reasons for this conclusion are as follows:

1. Flow was observed going over the baffle and the overflow switch, installed at the top of the baffle, was engaged.
2. The estimated flow going over the baffle at the time of sample collection was 5 gpm. This flow was determined by taking the difference of the measured flow at 002A (132 gpm) at the time of sample collection (6/30 at 9:10AM) and subtracting the observed effluent (002B) flow (127 gpm) at that time.
3. Combining the flow going over the baffle, 5 gpm, with the confirmed dry weather recovery flow rate of 45 gpm yields a total dry weather flow at the time of sample collection of approximately 50 gpm.

The following corrective actions have recently been performed and/or are planned:

1. The system is operating near capacity due to the increased overburden recovery rate and constant operation of the dry weather flow catchment system (i.e. sustained dry weather flow above recovery capacity). In order to allow for the dry weather catchment system recovery flow rate to be increased, without having to reduce overburden recovery, the bedrock well pump has been temporarily shut off. The dry weather catchment system is currently recovering approximately 45 gpm and as of July 2, 2017 periods of full dry weather flow capture at this flowrate have been achieved. This is likely indicative of a seasonal drop in groundwater table elevation which is expected to continue over the coming months. Should the groundwater table remain at, or continue to drop lower than, its current elevation it is anticipated that by the end of July, sustained full dry weather flow capture will be achievable by maintaining a flow between 40 and 50 gpm.
  - a. Note: A campus-wide electrical shutdown (performed annually for maintenance) on July 4, 2017 and frequent precipitation events have limited our ability to maintain full dry weather flow capture for extended periods of time during the month of July.

2. In March 2017 preliminary efforts were made to attempt to seal two open bottom catch basins (CB-74 and CB-73) as an immediate corrective action effort to reduce the amount of dry weather flow entering into the storm sewer system during these seasonally high water table conditions. As of 3/17/17, the interiors of both CB-73 and 74 had been power-washed, mortar applied to the interior to seal the seams at the inverts and in between the blocks, and concrete bottoms poured to create a near water-tight seal. Given that seasonally high groundwater levels are still present at the site the effectiveness of these seals remains unclear. A sample was collected of standing water present in CB-74 on June 30, 2017 and the TCE concentration was 1200 ppb, indicating that the seal has not been entirely effective and significant groundwater infiltration is still occurring. In the upcoming months as the water table drops, CB-73 and CB-74 will be further evaluated and supplemental sealing efforts will be made, as it will be possible to create a more effective seal once the structures no longer contain standing water.
3. Additional efforts are being planned to seal up other manholes and catch basins open to groundwater, including several inside Building 3. TI is working with the owner of Building 3 to determine when and how this work can be done without causing significant disruption to the owner's manufacturing operations.
4. We will continue to increase the recovery capacity of the overburden system in an effort to reduce the amount of overburden infiltration into the storm sewer which will reduce the dry weather flow and, under normal conditions, allow dry conditions on the downstream side of the baffle to be maintained at the design maximum vault recovery rate. The overburden system is now consistently recovering approximately 60 gpm and continued balancing efforts of the overburden capture system will be performed in order to increase capture at the points closest to the storm sewer network.